Reaching High Performance by Using Accelerators

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Abstract

To reach exascale performance new architectures are necessary to save energy while increasing the compute power. Two accelerators which are already available and in use are GPGPUs from NVidia and the recently developped Intel Many-Integrated Cores (MIC) coprocessor. Both are used as accelerator cards attached to the main CPU. Although the nominal peak performance looks impressing, the way to achieve high performance for an already highly optimized code like GENE shows to be challenging. The pecularities of these accelerators, together with the process of porting and some results for the GENE code will be presented.